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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,230	06/09/2005	Akiyoshi Suzuki	1232-5682	2285

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EXAMINER

MATHEWS, ALAN A

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/538,230

Applicant(s)

SUZUKI, AKIYOSHI

Examiner

Alan A. Mathews

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 12, 14-18 and 20 is/are allowed.
- 6) ☒ Claim(s) 9-11, 13, 19 and 21 is/are rejected.
- 7) ☒ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>6/9/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 13, lines 15 and 16, “like a 61b1 and 61b2 as shown in FIG. 4B” should apparently be “like a 62b1 and 62b2 as shown in FIG. 4B”, since “61b1 and 61b2” are not shown in FIG. 4B.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 9, 10, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Toyoda et al. (U. S. Patent No. 6,095,560). Toyoda et al. discloses in figures 1 and 3A and column 19, lines 27-67, and column 20, lines 1-17, a diffraction optical device 16 having a first diffraction optical element 16a that forms a first part of an illumination distribution and a second diffraction optical element 16b that forms a second part of an illumination distribution. With respect to

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claim 10, figure 4 and column 21, lines 38-67, and column 20, lines 1-40, disclose a third diffraction optical member 16c and a fourth diffraction optical member 16d. With respect to claim 19, figure 1 discloses an illumination system including light source 11 and a projection optical system PL for projecting a pattern on the reticle M onto a plate W.

4. Claims 9, 10, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kamilhara et al. (U. S. Patent No. 5,695,274). Kamilhara et al. discloses in figures 1-4 and column 7, lines 45-67, and column 8, a diffraction optical element 61 having four diffraction gratings 61a (which would comprise a first, second third, and fourth diffraction optical element) for forming a first, second, third and fourth part of an illumination distribution on a predetermined surface. With respect to claim 19, the illumination system includes element 1 and the projection optical system includes element 12 and element 11 is the reticle and element 13 is the plate (wafer).

5. Claims 9, 11, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Fiolka et al. (U. S. Patent Application Publication No. 2006/0055909 A1). Fiolka discloses in figure 2 and paragraphs # 0090 and # 0095 a first diffraction element 18 and a second diffraction element 30. The first and second polarizing elements are PM1 and PM2.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Japanese patent document 6-204121 (cited in Applicant's PTO-1449), in view of Smith et al. (U.S. Patent No. 5,482,801). The Japanese patent document 6-204121 discloses in figures 1 and 2 an illumination optical system for illuminating an illuminated surface using light from light source 1. Figure 2 discloses polarizing beam splitters 6a and 6b (polarization unit) in a first and second optical system. Elements 8a and 8c are phase plates for the different optical systems. Element 10 is an integrating optical system for integrating the light from the first optical system with the light from the second optical system, and for introducing integrated light into the illuminated surface (either 12 and 14). Thus, the Japanese patent document 6-204121 discloses the invention except for specifically stating that phase plates 8a and 8c are diffracting. Smith et al. discloses in column 1, lines 49-56, that phase plates are diffractive elements. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to make the phase plates 8a and 8c in the Japanese patent document 6-204121 diffractive for the purpose of improving the image and thus producing a better final product. With respect to claim 21, figure 1 discloses a reticle 12, a projection optical system 13, and a plate 14.

Allowable Subject Matter

8. Claims 1-8, 12, 14-18, and 20 are allowed. The reasons for the indicated allowability of the claims are as follows:

The prior art does not disclose or suggest a first polarization unit for adjusting a polarization state of the light from the first diffraction optical element, and a second polarization unit for adjusting a polarization state of the light from the second diffraction optical element, and an integrating optical system for integrating the light from the first diffraction optical element with the light from the second diffraction optical element, and for introducing integrated light into the illuminated surface in combination with all the other elements recited in each of independent claims 1 and 12.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patents cited in the PTO-1449 are cited for the same reasons they were cited in Applicant's PTO-1449.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan A. Mathews whose telephone number is (571) 272-2123. The examiner can normally be reached on Monday through Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alan A. Mathews
Primary Examiner
Art Unit 2851

AM